James River Corporation

Richmond, Virginia

ENSR

Initial Environmental Assessment of James River-Massachusetts Mill #8 Fitchburg, MA

ENSR Consulting and Engineering

(Formerly ERT)

December 1989

Document Number 4540-007-100

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1. PURPOSE AND SCOPE

James River-Massachusetts, Inc. has requested an initial assessment of its Mill #8 located at 701 Westminster Street in Fitchburg, Massachusetts. The purpose of the initial assessment is to determine whether there are any known environmental conditions on the property which would create a liability relative to Massachusetts General Laws Chapter 21E, "The Massachusetts Oil and Hazardous Materials Release Response and Prevention Act." A second objective of the assessment was to determine whether there were disposal areas or chemical management activities at the site that are indicators of potential hazardous materials releases. The assessment did not focus on other environmental liabilities or environmental compliance issues.

To achieve these objectives ENSR conducted a site inspection of the property surrounding the manufacturing facilities, an inspection of the manufacturing facility in sufficient detail to understand the manufacturing process and the operation and maintenance of the facility; interviewed knowledgeable plant personnel; reviewed available facility engineering and site plans; reviewed facility environmental records and reports; reviewed selected municipal records relating to the site history and environmental issues, such as underground storage tanks and wastewater discharge permits; reviewed state environmental agency files relating to the subject facility; and reviewed available environmental reports relating to abutting properties.

2. SITE DESCRIPTION AND LAYOUT

James River-Massachusetts Mill #8 is situated at the crest of a hill on approximately 100.4 acres (inclusive of the roadway parcel) in Fitchburg, Massachusetts. Northeast of Mill #8 proper and contiguous to its lies 9+ acres of property containing Mill #2, Mill #3 and other support buildings. Approximately 20-25% of the property is covered by buildings and pavement. The remainder is composed of woodland, roads and waste management areas.

North and north-northwest of Mills #8, #3 and #2 is Westminster Street (Rt. 2A); just south of Westminster St. is Snows Mill Pond; to the east the property is bordered by Princeton Rd. (Rt 31); to the south Mill #8 is bordered by the Boston and Maine (B&M) railroad and the City of Fitchburg West Wastewater Treatment Plant lagoons; and to the west the Mill #8 property crosses the Westminster/Fitchburg town line presumably to the junction of the B&M railroad and Rt. 2A. The site location is identified on Figure 1, which is taken from a portion of the USGS topographic map of the Fitchburg quadrangle.

As shown in the accompanying Table 2-1, a majority of on-site buildings underwent an interior and exterior inspection as part of this initial assessment. Several buildings and/or areas of buildings were not accessible at the time of the inspection and are briefly identified on the table. On site investigtions were conducted December 11 to 13 and again on December 15 and December 20, 1989. Local and state regulatory and general informational searches were conducted on December 7, December 10, December 11, December 14, and December 15, 1989.

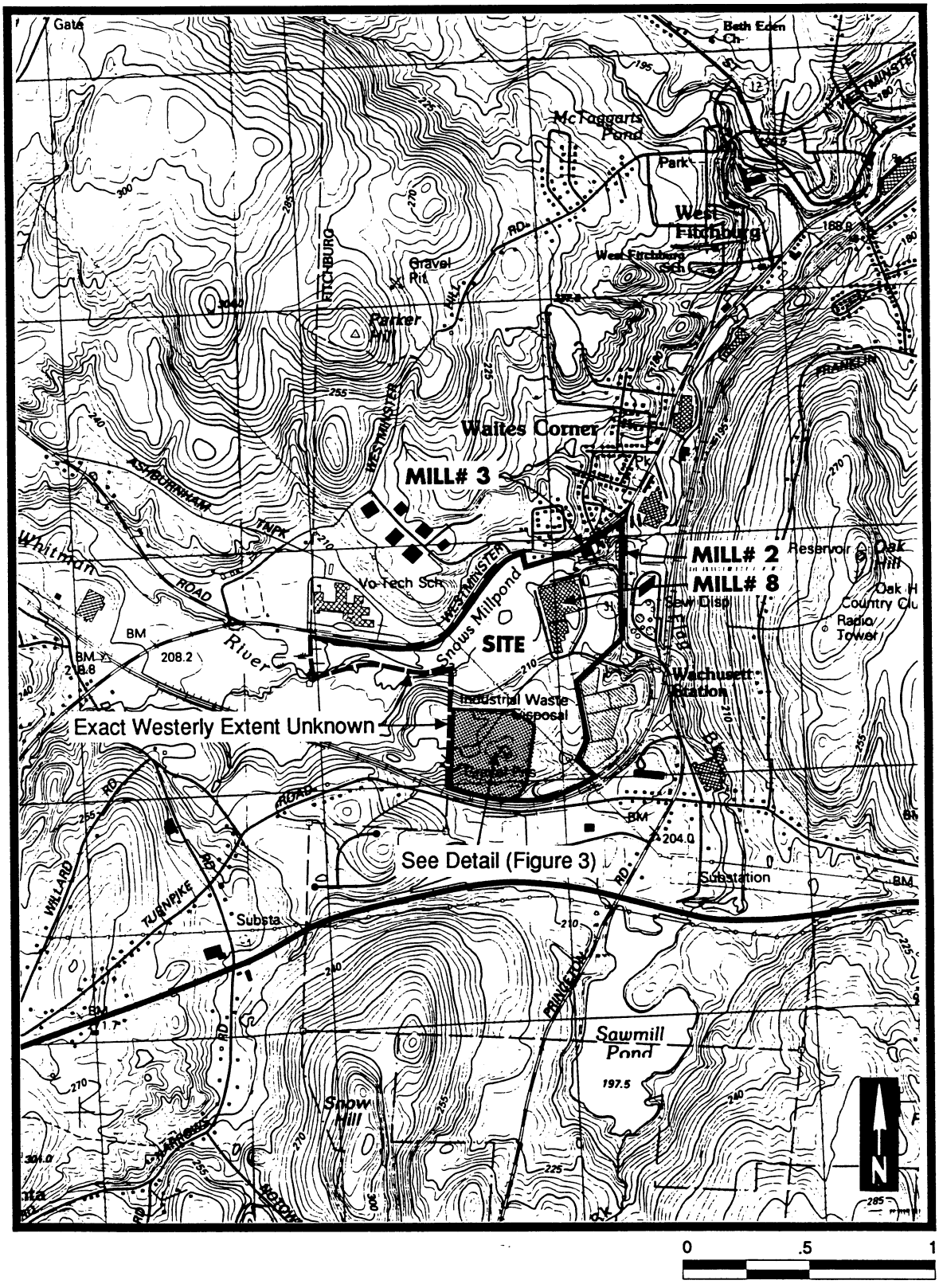

Figure 1

Site Location Map

Fitchburg Qadrangle

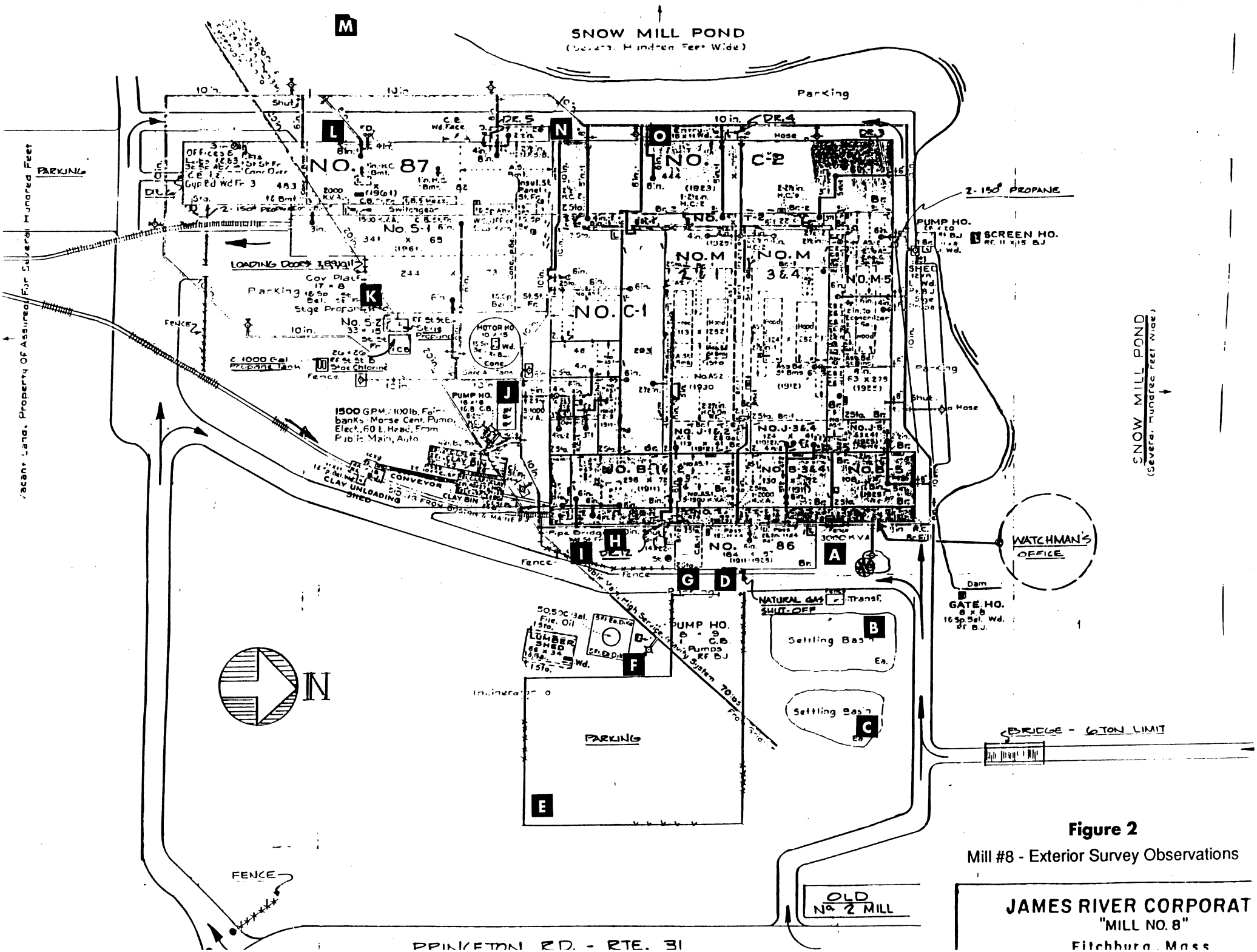

Figure 2

Mill #8 - Exterior Survey Observations

JAMES RIVER CORPORAT
"MILL NO. 8"
Fitchburg, Mass

LEGEND OF SYMBOLS FOR FIGURE 2

*A Oil staining on 2nd set of 3 transformers non PCB containing

*B Frozen; sludge deposits not verified

*C Filled in w/sand

D 2 fill locations (3", 2" diameter pipes)

E Scrap metal; a few empty barrels

*F 1 fill pipe ~ 4" diameter; oil storage tank

G Smokes stack w/ 2 vent duct pipes to atmosphere

*H *5th bay kerosene tank Oil, bermed, slight soil @ pump

*6th bay 1) Oil Tank, bermed, 4 x 4 spill area @ pump

2) ? product on concrete pad; frozen contents in burned area

7th bay unloading values = 3 total 1 Alum; 1 unmarked/ rusted; 1 unknown

8th bay some old pipes present; now location of water line

10th bay 8 bulk drums by Plasmine outlet hose, hose capped

*I Drum Storage Area

*Orange drum unlabelled, leaking product and/or water - product ~ 4 x 3

*1 Rusted drum unlabelled, leaking product ~ 6 x 4 area

- 125 est. barrels stored (empty?)
- 2 bulk drums

*J 3 Non-PCB Transformers fenced off; Far west one is dripping & flowing off pad to soil/gravel; Staining all around 3 transformers.

*K Hypochlorite fill line location - white staining on ground by pail

L 2 barrels of product (1 overflowing one empty) from 1st floor hose; location of 4 valves Ammonia/T-17 Later/Calgon Polymer/Flush H_2O

*M 1 waste oil barrel in sand covered area over asphalt; spill area ~ 3 x 3

N 1 pipe w/wind shield discharging liquid to outside drain at building foundation; ice/water noticed.

O Caustic unloading station.

* of particular note

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TABLE 2-1

BUILDING DESCRIPTIONS

JAMES RIVER MASSACHUSETTS MILL #8

Structure/ Building	Use	Inspection Interior/ Exterior	Inassessible Areas	Current Chemical & Waste Handling	Chemical or Waste Type
Mill #8	paper mfg.	Y-part./Y	Y-various areas	Y-Chem; Waste	Transformers (PCB; non-PCB), kerosene, lube oil, #6 fuel oil; various other mfg. chemicals
Warehouses #1	storage	Y/Y	N	Y	3 above ground tanks (exterior) 18 above ground tanks (interior)
#2	unk.	N/Y	Y	unk.	electrical supplies
Warehouse #3	unk.	N/N	Y	unk.	unk.
Mill #3	leased 1st fl. basement	Y/Y	N	unk.	1 above ground tank (interior)
	abandoned	Y/Y	N	N	none
Machine Shop	equipment maintenance & repair	Y/Y	N	Y	1 above ground kerosene tank (interior)
Garage	vehicle maintenance	Y/Y	Y-tool rm. locked	Y	oil prod./solv.
Mill #2	abandoned	Y/Y	Y-machine pit ice-filled; roof cave-in.	N	unk.

Abbreviations Used:

Y = yes
N = no
part. = partial
unk. = unknown
rm. = room
grd = ground
prod. = product
solv. = solvent

3. SITE HISTORY

Approximately 1000 feet south-southeast of the subject site, along Princeton Rd. and proximate to Flagg Brook, J. Crocker built Mill #1 in the 1850's. This first mill was one of ten Crocker, Burbank and Co. paper mills that eventually stretched from Old Princeton Rd. to Cleghorn St. in Fitchburg. By 1887, the Sanborn Fire Insurance Company atlases indicated the completion of Mill #2 and Mill #3 by Crocker, Burbank and Co. Also constructed on that site was a storage building for all the Crocker, Burbank and Co. mills. These mills known as the Stone Mill (Mill #2) and Snow Mill (Mill #3), were lighted by kerosene and fueled by coal. A coal house at the No. 2 mill was noted by the Sanborn 1887 atlas. These atlases also indicated the presence of a tank at Mill #2 from 1887 to 1897. The tank, however, did not appear in the 1902 atlas edition. Contents of the tank were not specified.

On the Mill #8 property as early as the 1840's, the dam on the Snows Mill Pond had been built. By 1887 several dwellings and a store house had been recorded, but it was not until 1911-1912 when Mill #8 itself was constructed that any additional, significant industrial uses took place at the subject site.

In 1923 at the Mill #8 site, Crocker, Burbank and Co. constructed a train shed west of the 210' x 48' finishing building. Several additions were built at Mill #8 by Crocker, Burbank and Co. in 1925, including the northern 55 feet of the boiler house, the northern half of the transformer house, the train shed east of the beater rooms, Beater Room No. 5, Jordan Room No. 5, Machine Room No. 5, the Finished Paper Storage Building, and the loading shed.

According to 1926 records, Mill #8 utilized 40% steam and 60% electricity in power consumption; heat was via steam and the fuel was specified as fuel oil. A 150,000 gallon fuel oil tank was placed opposite the Boiler House and on the easterly side of the mill. One wastewater settling basin is located due

north of the tank. The 1936 to 1950 records indicate an additional tank location consistent with the clarifier location on site and an additional settling basin due east of the existing settling basin. According to interviews, and confirmed by maps and atlases, Crocker, Burbank and Co. continued to own and operate the three mills, namely Mills #2, #3 and #8 from 1936 to 1950. Construction and building additions continued on Mill #8 after the 1950's; however, the available Sanborn atlases were not updated after this time. Therefore all succeeding historical information is based on employee recollection and existing evidence on site.

The Crocker, Burbank Co. sold its chain of mills along the Nashua River to Weyerhauser Company in 1966 and Weyerhauser then sold Mills #2, #3 and #8 to James River-Massachusetts Inc. in 1975. Between 1966 and 1975 two additions were added to Mill #8, these additions are known as No. S-1 and No. 87.

Prior to the construction of the Fitchburg West Wastewater Treatment Plant, the waste waters from the papermaking process were discharged to the spillway of Snow's Mill Pond after being treated in a pair of settling basins located east of the Mill near the dam. For several years after the construction of the wastewater plant the effluent from the plant was still settled in on-site lagoons to remove heavier solids. This treatment was conducted in two lagoons located southwest of the mill. These lagoons still exist as does one of the older settling basins. The other settling basin was filled in. Sludge from the lagoons and settling basins was disposed of on site.

Two known "landfill" sites and one site from which barrels were excavated are known to exist on the Mill #8 site. In addition, fly ash deposits and paper sludge deposits are known to exist in several areas. West Fitchburg, once known as "Crockerville", had its own area landfill on the Mill #8 property which serviced the mills, their employees and their families. Details or further explanation of these sites may be followed in the next section of this report.

4. SUMMARY OF FINDINGS

The review of Massachusetts Department of Environmental Protection (DEP), formerly Department of Environmental Quality Engineering (DEQE) records, Fitchburg Fire Prevention Bureau records, Fitchburg Assessors Office records, James River - Massachusetts files, coupled with discussions with James River - Massachusetts employees and an examination of exterior conditions at the site by ENSR personnel, has identified several issues relating to on-site waste disposal and chemical handling procedures. In addition, evidence of hazardous material releases regulated by Massachusetts General Law, Chapter 21E have been identified.

4.1 Documented or Observed Releases

4.1.1 Buried Drum Removal

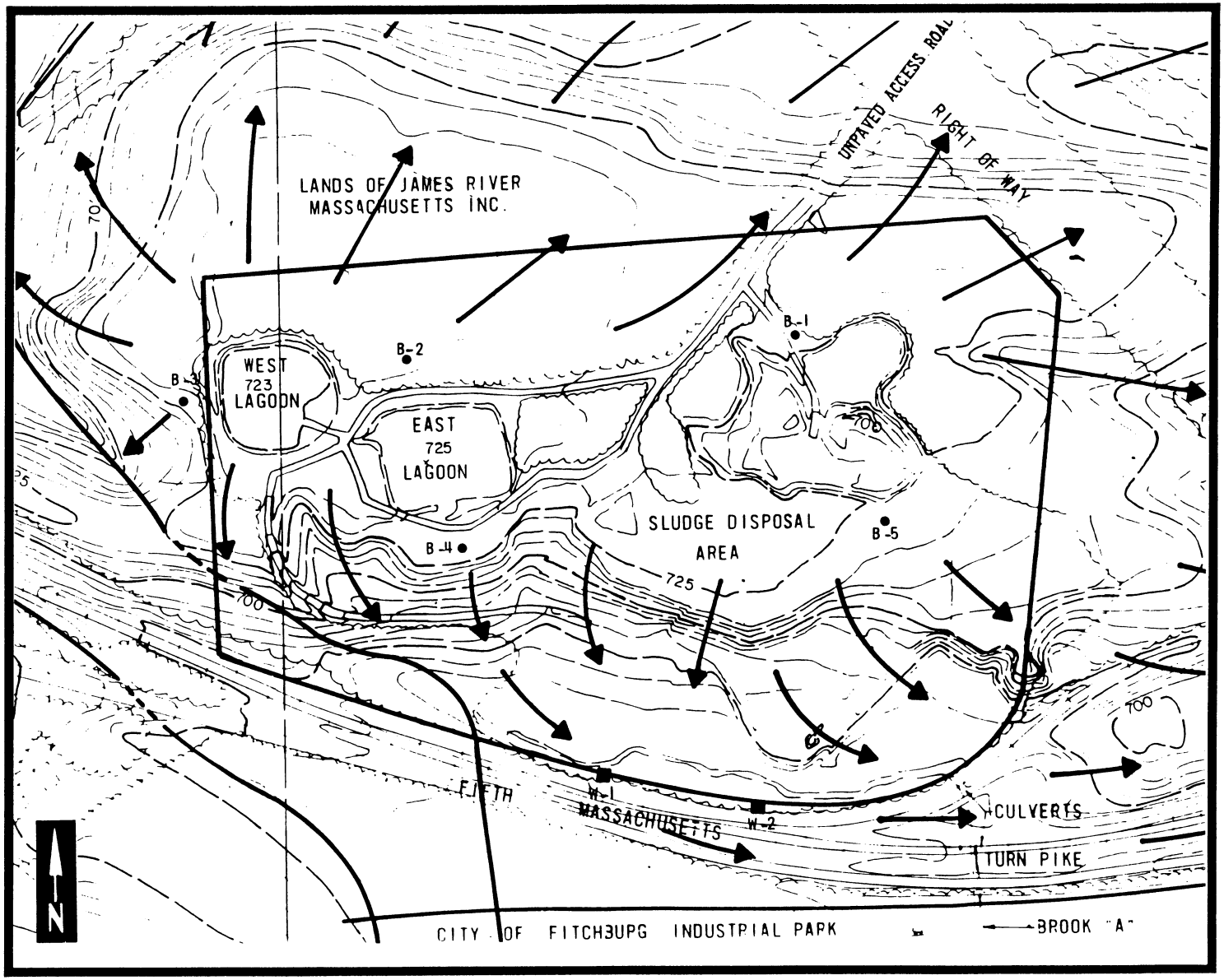
In 1979 a number of barrels were discovered while the West Wastewater Treatment Plant operators were preparing to put in their fifth lagoon. Immediately adjacent to this fifth lagoon location was an area known as the "drum graveyard". This "drum graveyard" was the area where the majority of drums were later excavated in the clean-up activities. The "drum graveyard" was located on the New England Power Co. Right of Way and adjacent to the "cinder dump". According to a Massachusetts DEP memorandum, "prior to 1975, the Weyerhauser Company owned this facility and disposed of chemical wastes contained in 55 gallon drums and solid wastes...on this property". The hazardous materials which were of concern to the DEP were buried in 55 gallon drums containing non-chlorinated petroleum-based solvents and semi-solid organic compounds. The following table is abstracted from a November 20, 1980 DEP notification letter to Weyerhauser Co. and lists the total amount of material removed:

	Amount of Material Removed		
	Drums	Gallons	Tons
Drummed Waste Excavated	1327		
Flammable Liquid & Polymerized semi solids recovered		4600	
Solid Residue	74		
Contaminated Soil & Solidified Residue			238
Empty Crushed Drums			100

According to the same letter, the site had been cleaned up in 1980 to the DEP's satisfaction, and in 1987 the site was taken from the CERCLIS listing as a "Site Under Investigation" and placed on the "Remedial Action Complete List".

4.1.2 Groundwater Monitoring in Crockerville Landfill

In 1979 Malcolm Pirnie, Inc., as part of its Sludge Disposal Study for James River - Massachusetts, Inc., "conducted investigations at the sludge disposal site area for the purpose of evaluating the present sludge disposal system, and its effect on the area ground and surface waters". This resulted in the installation of five monitoring wells denoted by B-1 through B-5 (see Figure 3 for exact locations) and two monitoring wells W-1, W-2 in the wetland location proximate to the railroad tracks. Data from B-1, B-2, B-3, B-4, and B-5 from July 1980 to January 1986 was available from Massachusetts DEP Water Pollution Control Files and from the Malcolm Pirnie Study are included in Attachment A. No additional data could be obtained for monitoring wells W-1 or W-2. Results from eight rounds of samples collected between December 1980 and June 1982 indicated the presence of chlorinated solvents, primarily 1,1,1-trichloroethane, in two of the wells, B-1 and B-5. The levels detected in B-5 ranged from traces to 24 parts per billion (ppb), and on some occasions no contamination was detected in this well at all. Chlorinated solvents were always detected in B-1 up to a maximum concentration of 520 ppb. The latest reported concentration of 1,1,1-trichloroethane showed a decrease to 140 ppb.



Source: Malcom Pirnie, Inc., 1979
James River - Massachusetts - Sludge Disposal Study

0 200' 400'

Figure 3
Ground Water Flow Map

During this same period samples were collected from a culvert leaving the property. The exact location of this culvert is not known but it is presumably near the landfill. Traces of chlorinated solvents and higher concentrations of non-chlorinated solvents were detected in the early rounds of sampling; but the last two rounds of samples identified only traces of 1,1,1-trichloroethane.

4.1.3 Leaking Non-PCB Transformer(s)

The exterior transformer bank was located on the south side of the building just to the east of the clarifier tank and west of the railroad spur and clay bin. The fenced area contained 3 transformers. Staining on the concrete pad around all three transformers and the immediately adjacent gravel area was noted. The staining around two of the three transformers apeared to be older since this location "appeared" dry. One transformer was actively leaking fluid and oil fluid was pooled around its base, and seeping into the gravel. The fluid was slowly dripping down the transformer base and as a result of uncontrolled leakage, was pooling and slowly migrating to the adjacent transformer base and off the pad into the surrounding gravel area. The gravel area showed no signs of "pooling", but appeared wet. Overall staining as a result of this leaking transformer was approximately 4' by 3' on the concrete pad itself, and the extent of staining to the gravel area cannot be accurately estimated because the material flowed between the gravel and was obscured.

4.2 Locations With Potential for Release

4.2.1 Location of Known Landfills

Two landfills are known to exist on the Mill #8 property. The first is called the "Cinder Dump" which is estimated by a plant employee to have been last used around 1969. This area

is located just west of the New England Power Co. Right of Way and just north of the B&M railroad tracks on the southern James River - Massachusetts property line. A visual inspection of the area revealed many old rusted drums protruding from the hillside, a rusted old tank of unknown origin and assorted other containers. At the base of the swale was a stream or brook receiving leachate from the hillside. The leachate appeared to be discolored, but a majority of the stream was frozen. According to Mr. Leo Collette, Jr. this area and the area just to the east beneath the power lines was a major fill area for ash byproducts generated at the boiler room.

The second landfill area was the larger of the two landfills and it remains in part an open pit area. This is the Crockerville landfill mentioned previously. This area is located just off the dirt access road heading toward the lagoons to the southwest and is situated just above the wetland area. The area is covered with sand and paper pulp sludge and has purportedly been in use since 1911. Due to the nature of the pit very few barrels or other noteable items were observed. From the crest of the hill wetlands below were observed. They had white and brownish/red suspended particles at the wetland surface.

4.2.2 Lagoons

There are two locations within Mill #8 that have handled paper mill wastewater in the past. The first is the pair of settling basins recorded on maps and atlases beginning in 1926 and known to be just northeast of the mill itself and just south of the mill dam. At the time of ENSR's inspection the water level of the first settling basin was extremely low; however, the exact depth of water (or the depth to sludge) could not be determined because the basin had frozen. The second basin had previously been filled. According to Mr. Leo Collette, during normal operation the basin was allowed to

fill, the overflow was pumped off to the dam spillway, and the sludge was allowed to de-water and was then trucked to the "Crockerville" landfill location.

The second location for the lagoons is in the southwestern section of the Mill #8 parcel. This area was set up in 1979 to receive the effluent from the Mill via a piping system. As the lagoons reached capacity the overflow would be pumped out over the side of the lagoon toward the river and the sludge would be pushed out over the side and allowed to collect. Wetlands lie to the southeast of the lagoons just above the railroad tracks and to the west. The vegetation to the north and west of the lagoons is well established while vegetation to the south has not been established on the sandy outslopes and vegetation to the south-southeast toward the wetland area is stressed. Odors from the sludge adjacent to the wetland area are quite noticeable. Some sludge and/or other material or liquid was frozen at the time of the initial inspection, while other sections of the lagoons appeared dry. The lagoons are no longer actively being used by the No. 8 Mill. All effluent now exits the building via u-drains to the West Wastewater Treatment Plant.

4.2.3 Outside Storage Tanks

Three underground storage tanks at one time were located at the James River - Massachusetts facility. Sanborn Fire Insurance Atlases of 1936 and 1950 and the Associated Mutual Insurance Company's Map from 1926 show the location of a 150,000 gallon fuel oil tank constructed five feet above ground and five feet below ground. This tank was located east of the boiler room and south of the wastewater settling basins. No records are known to exist after 1950 concerning this tank which has been demolished and filled in.

A second tank was located at Mill #8. This was a 1000 gallon kerosene tank last in use in 1986. Its age was

estimated to be greater than twenty years and was of steel construction. The Fitchburg Fire Prevention Bureau had on file an "application for permit for removal and transportation to approved tank yard" for a 1000 gallon kerosene tank issued on August 20, 1986.

The last underground storage tank known to have been on the property was located at the garage. It was a 1000 gallon steel gasoline tank listed with the Fire Prevention Bureau in 1986. It's age was estimated to be greater than 20 years. According to Leo Collette, Jr. and David Gabryel that tank was pulled in 1987. It was reported that some sand around the tank was contaminated with lead. The sand was placed in a drum and shipped via hazardous waste manifest to an acceptable landfill location. No documentation is currently available.

Three outside aboveground storage tanks are located at Mill #8. They are tabulated as follows:

Contents	Capacity	Permit to Install (Y/N)	Date Installed
Sun Oil "Sunvis 775"	5,000 gal	Y	October 1975
Kerosene	5,000 gal	Y	October 1986
#6 Fuel Oil	50,500 gal	Not w/Fire Dept. records	unknown

4.2.4 Alleged Drum Disposal

An Interoffice Comminication between Andy Zephir and Charlie Williams dated December 14, 1984 references memos written by Peter Sacksen and Peter Hughes on December 17, 1969 and September 20, 1971, respectively, which asserted that additional drums of solvents were disposed of in the No. 8 Mill lagoons and that some drums were also buried in the Crockerville landfill back in the woods. This landfill covers an area of 300-500 yards in length, 100 yards wide and up to 80 feet deep.

5. STUDY LIMITATIONS

This report describes the results of ENSR's initial investigation conducted to identify the presence of a significant oil or hazardous material contamination problem subject to Massachusetts General Law Chapter 21E involving or affecting the subject property. The results represent the application of a variety of engineering and technical disciplines to material facts and conditions associated with the subject property. Many of these facts and conditions are subject to change over time; accordingly, the conclusions and recommendations must be viewed within this context. We note that investigative activities took place on December 7, 11, 14 and 15, 1989, with the on-site investigations being performed on December 7, 11-13, 15, 20, 1989. We further note that this assessment did not include the collection and analysis of samples.

ENSR has performed this preliminary assessment in a professional manner using that degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants. ENSR shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld or not fully disclosed at the time the evaluation was performed.

Finally, we note that this preliminary assessment was prepared for the benefit of James River Corporation, James River - Massachusetts, Inc. and their attorneys. The information contained in this analysis, including exhibits thereto, may not be used by any other party without the express written consent of ENSR Corporation.

6. REFERENCES

Persons Performing Initial Assessment:

Robert K. Cleary and Linda A. McCarthy of ENSR

Persons Performing Records Search:

Linda A. McCarthy and Jeanne Goulet of ENSR

Persons Interviewed:

James River - Massachusetts: Leo P. Collette Jr.
David W. Gabryel
Daniel Snyder
Peter Casey
Ken Johnson

Public Officials Interviewed:

Peter D. Hughes, PE G.M. Wastewater Treatment Facilities
Deputy Chief Fleckner Fitchburg Fire Prevention Bureau

Records Reviewed:

Massachusetts DEP: Water Pollution Control Files
Sites File
RCRA File
Hazardous Waste File
Air Quality Control Files (not available)
Fitchburg Emergency Response Files

City of Fitchburg: Fire Prevention Bureau (#8 Mill only)
Tax Assessors Records
Wastewater Commission
Town Clerk

State House Library: Sanborn Fire Insurance Atlases

Other Sources:

James River-Mass. Inc. Correspondence Files.

Malcolm Pirnie, Inc. Sludge Disposal Study, June 1979.

Geotechnical Engineers Inc. Geohydrologic Study, Sludge Dewatering Lagoons, March 1986.

Havens and Emerson, Inc. West Wastewater Treatment Plant Groundwater Reclassification/Discharge Permit Project; Draft EIR, April 1987.

ATTACHMENT A

BORING LOGS AND WELL ANALYSES

Table 2.4

JAMES RIVER - MASSACHUSETTS
SLUDGE CHARACTERISTICS

Parameter	1/15/79		2/14/79		3/8/79		3/13/79		
	Unfilt.	Filt.	Unfilt.	Filt.	Unfilt.	Filt.	Unfilt.	Filt.	Spec.
pH	5.2		5.3		5.9		5.2		
BOD_5				36		102		21	
BOD_{20}						105		28	
COD				88		306		70	
Tot. Solids			12,450		19,580		19,960		
Susp. Solids	3,900		12,330		17,200		17,660		
Vol. Susp. Solids	2,910		9,030		15,850		16,800		
TKN				14					
Org N						3.4		3.9	
NH_3-N						5.3		2.8	
Tot. Phos.				0.45		0.35		0.26	
Iron	13.2	0.16	8.05	1.88	5.85	0.24	9.15	1.8	<0.0
Cadmium	0.20	<.002	0.2	0.02	0.22	0.05	0.07	0.01	0.1
Chromium	0.08	<0.01	0.08	<0.01	0.11	<0.01	0.05	<0.01	<0.0
Copper	1.02	0.08	0.56	<0.01	5.47	<0.01	0.42	<0.01	<0.0
Zinc	0.60	0.16	0.35	0.05	0.33	<0.01	0.19	0.04	<0.0
Arsenic	<0.5	<0.5	<0.5	<0.5	<0.9	<0.5	<0.6	<0.5	<0.5
Barium	0.45	0.30	<0.1		<0.2	<0.1	<0.12	<0.1	<0.1
Lead	<0.5	<0.1	0.16	<0.1	<1.0	<0.1	<1.15	<0.1	<1.7
Selenium	<0.5	<0.5	<0.5		<0.5	<0.3	<0.34	<0.3	<0.3
Silver	0.15	<0.02							
Mercury		0.0002				<0.01		0.003	

Note: 1. All parameters are reported as mg/l except pH.

2. Special Digestion on the 3/13/79 sample is an extraction procedure in accordance with recently proposed EPA guidelines.

3. Filtered samples are passed through a 0.45 micron filter.

TABLE 3.1

JAMES RIVER, MASSACHUSETTS, INC.

SEEPAGE AND SURFACE WATER ANALYSES

Parameter	1/15/79[4]	2/14/79[4]	3/12/79[4]	4/6/79[4]	4/26/79	5/1/79	5/21/79
pH	6.8	7.9	5.8				
BOD		2	10				
COD	24	38					
TOC				2.2	19.4[3]		60[4] 30[3]
TKN		3.4					
Org.-N			.8				
NH_3-N			1.1				
NO_2+NO_3-N			.39				
Total Phos.		.27	.12				
Iron (filt.)	1.65	<.02	.1				
Iron (unfilt.)		15.7	10.8	79	65.4[3]	7.2[3] 10.7[4]	24.2[3] 69.4[4]
Cadmium	<.002	.03	<.002				
Chromium	<.01	<.01	<.01				
Copper	.01	.01	<.01				
Zinc	.02	<.005	<.005				
Arsenic	<.5	<.5	<.5				
Barium		<.1	<.1				
Lead	<.1	<.1	<.1				
Mercury	.0001		<.0001				
Selenium	<.5	<.5	<.5				
THF				ND[5]	ND	ND	ND
DMF				ND	ND	ND	ND

Notes:

1. All parameters reported as mg/ℓ, except pH.
2. THF and DMF are organic chemicals.
3. Samples taken in drainage stream.
4. Leachate seep.
5. None detected.

TABLE 3.2

JAMES RIVER, MASSACHUSETTS, INC.

GROUND WATER ANALYSES

Date	THF (mg/ℓ)	DMF (mg/ℓ)	TOC (mg/ℓ)	Fe (mg/ℓ)	Comments
		Well B-1			
4/26	12.6	29.0	22.8	3.6	
5/21	2.2	ND	21.0	13.2	
		Well B-3			
4/6	-	-	9.5	8.0	
5/21	2.5	ND	16.0	9.0	
		Well B-4			
4/6/79	Present[1]	Present[1]	317	100.0	
4/26	123.9	198.3	172	98.4	
5/7	43.8	215.2	136	14.6	before flush
5/8	14.6	85.2	107	2.5	before flush
5/14	1.4	ND[2]	5	4.2	right after flush
5/21	1.2	ND	4	87.1	1 wk after flush
		Well B-5			
4/26	44.8	84.5	60.8	1.4	
5/21	25.5	53.3	35	1.2	
		Well W-1			
4/26	ND	ND	4.2	29.9	
5/21	ND	ND	5.0	16.8	
		Well W-2			
4/6	-	-	6.4	28.0	
4/26	-	-	-	-	
5/21	ND	ND	15.0	12.9	

[1] Sample run by G.D. Martinie thru York Research Corp., Stamford, Conn.
[2] None detected, 25 mg/ℓ is detection limit for DMF, 1 mg/ℓ for THF.

Note: All parameters reported as mg/ℓ

JAMES RIVER - MASSACHUSETTS, INC.
P.O. BOX 310, FITCHBURG, MASSACHUSETTS 01420 TELEPHONE: 617-343-3051

GROUND AND SURFACE WATER TEST RESULTS

CONCENTRATION mg/l

Well	Date	pH	Fe	TOC	COD	BOD	THF	DMF
B-1	4/7/80		0.07	2	17		<0.1	<0.1
	4/10/80	5.8				6		
	5/22/80	5.9	1.5	4.5	7.1	9	<0.1	<0.1
B-2	4/7/80	Dry						
	5/22/80	Dry						
B-3	4/7/80	Dry						
	5/22/80	Dry						
B-4	4/10/80	6.3	60	5	27	18	1.1	<0.1
	5/22/80	6.5	67	12	40	11	1.7	<0.1
B-5	4/7/80		43	25	830		35	<0.1
	4/10/80	6.5				45		
	5/22/80	6.7	66	23	27	35	3.0	<0.1
Surface	5/22/80	6.7	48	<1	34	11	<0.1	<0.1

Sample Location	Date	1,1-dichloroethylene	1,1-dichloroethane	Trans-1,2-dichloroethylene	1,1,1-Trichloroethane	Trichloroethylene	Tetrachloroethylene	Toluene	Xylene	Ethylbenzene
	12/12/80									
Culvert		**ND	ND	ND	0.021	ND	ND	0.026	ND	ND
Well B-1		*Trace	Trace	0.017	0.520	0.028	0.054	ND	ND	ND
Well B-4		ND	ND	ND	ND	ND	ND	ND	ND	ND
Well B-5		ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/20/81									
Well B-1		ND	ND	ND	0.15	ND	ND	ND	ND	ND
	3/4/81									
Culvert		ND	Trace	ND	0.050	ND	ND	0.45	0.59	0.77
	4/7/81									
Culvert		ND	ND	ND	0.024	ND	ND	0.014	0.024	ND
	5/26/81									
Culvert		0.014	Trace	ND	0.026	ND	ND	ND	ND	ND
Well B-1		ND	0.058	0.084	0.45	0.047	0.085	ND	ND	ND
	6/23/81									
Culvert		Trace	Trace	ND	0.017	ND	ND	ND	ND	ND
	7/21/81									
Well B-5		ND	Trace	Trace	0.024	Trace	0.026	ND	ND	ND
Culvert		ND	Trace	ND	Trace	ND	ND	ND	ND	ND
	4/27/82									
Culvert		ND	ND	ND	0.012	ND	ND	Trace	ND	Trace
Well B-1		ND	0.039	0.042	0.18	0.021	0.039	ND	ND	ND
Well B-5		ND	ND	ND	0.015	ND	Trace	ND	ND	ND
	5/6/82									
Culvert		ND	ND	ND	Trace	ND	ND	Trace	ND	Trace
Well B-1		ND	0.060	0.077	0.12	0.018	0.037	ND	ND	ND
Well B-5		ND	ND	0.012	0.011	Trace	0.012	ND	ND	ND

* Trace = 0.001-0.009
** ND = Not Detected

SEP 1982

Sample Location	Date	1,1-dichloroethylene	1,1-dichloroethane	Trans-1,2-dichloro-ethylene	1,1,1-Trichloro-ethane	Trichloroethylene	Tetrachloroethylene	Toluene	Xylene	Ethylbenzene
	5/13/82									
Culvert		ND	ND	ND	Trace	ND	ND	ND	ND	ND
Well B-1		ND	0.027	0.022	0.096	Trace	ND	ND	ND	ND
Well B-5		ND	ND	ND	Trace	ND	Trace	ND	ND	ND
	6/2/82									
Culvert		ND	ND	ND	Trace	ND	ND	ND	ND	ND
Well B-1		0.038	ND	0.034	0.140	0.013	0.028	ND	ND	ND
Well B-1		ND	ND	Trace	0.029	Trace	0.013	ND	ND	ND

AUG 27 1982

JAMES RIVER - MASSACHUSETTS, INC.
701 WESTMINSTER STREET, FITCHBURG, MASSACHUSETTS 01420 TELEPHONE 617-343-3051

Mr. Gilbert T. Joly, P.E.
Regional Environmental Engineer
Department of Environmental Quality Engineering
75 Grove Street
Worcester, MA 01605

Dear Mr. Joly:

Below are tabulated the test results for the wells at our sludge lagoon:

Well	Date	pH	TOC	Fe	THF	DMF
1	4/27/82	5.4	12	4.6	0.011	∠1.0
2	4/27/82			Dry		
3	4/27/82			Dry		
4	4/27/82			Dry		
5	4/27/82	5.7	12	23	0.390	∠1.0
Surface	4/27/82	6.1	20	15.7	∠0.001	∠1.0

All values are in mg/l.

If you have any questions concerning these results, feel free to call.

Sincerely,

Norman E. Burt

NEB/ml

JAMES RIVER - MASSACHUSETTS, INC.
701 WESTMINSTER STREET, FITCHBURG, MASSACHUSETTS 01420 TELEPHONE 617-343-3051

Mr. Gilbert T. Joly, P.E.
Regional Environmental Engineer
Department of Environmental Quality Engineering
75 Grove Street
Worcester, MA 01605

Dear Mr. Joly:

Below are tabulated the test results for the wells at our sludge lagoon:

Well	Date	pH	TOC	THF	DMF
1	6/2/82	5.6	5	<0.001	<1.0
2	6/2/82		Dry		
3	6/2/82		Dry		
4	6/2/82		Dry		
5	6/2/82	6.0	10	0.024	<1.0
Surface	6/2/82	6.7	11	<0.001	<1.0

All values are in mg/l.

For your information, I have attached a tabulation of additional test results obtained from the wells at our lagoon site. The purpose of the testing was to identify and quantify the volatile organics at the various sampling locations.

If you have any questions concerning these results, feel free to call.

Sincerely,

Norman E. Burt

NEB/ml

FILING

D.W.P.C. C.R.O.

MAIN FILE
COMPLAINT
OIL
HAZ. WASTE
NPDES
PERMIT
REC X
INSP
WWTF
OPS
REC
INSP
COMM

JAMES RIVER - MASSACHUSETTS, INC.
701 WESTMINSTER STREET, FITCHBURG, MASSACHUSETTS 01420 TELEPHONE 617 343 3051

NOV 5 1982

Fitchburg

October 27, 1982

Mr. Gilbert T. Joly, P. E.
Regional Environmental Engineer
Department of Environmental Quality Engineering
75 Grove Street
Worcester, MA 01605

Dear Mr. Joly:

Below are tabulated the test results for the wells at our sludge lagoon:

Well	Date	pH	TOC	Fe	THF	DMF
1	9/17/82	6.8	8	5.5	0.054	<1
2	9/17/82			Dry		
3	9/17/82			Dry		
4	9/17/82	6.8	15	80	0.25	<1
5	9/17/82	6.7	18	16.7	0.014	<1
Surface	9/17/82	7.4	27	45	<0.010	<1

All values are in mg/l.

If you have any questions concerning these results, feel free to call.

Very truly yours,

N. E. Burt

NEB/js

FILING
D.W.P.C.
C.R.C.
MAIN FILE
COMPLAINT
OIL
HAZ. WASTE
N.P.D.E.S.
REC
INSP

JAMES RIVER-MASSACHUSETTS, INC.
701 WESTMINSTER ST., FITCHBURG, MASS. 01420 TELEPHONE: 617-343-3051

MAR 1983

February 28, 1983

Mr. Gilbert T. Joly, P.E.
Regional Environmental Engineer
Department of Environmental Quality Engineering
75 Grove Street
Worcester, MA 01605

Dear Mr. Joly:

Below are tabulated the test results for the wells at our sludge lagoons.

Well	Date	TOC	Fe	THF	DMF
1	12/15/82	15	7.6	<0.01	<1
2	12/15/82		Dry		
3	12/15/82		Dry		
4	12/15/82	20	120	0.60	<1
5	12/15/82	12	24	<0.01	<1
Surface	12/15/82	30	45	<0.01	<1

All values are in mg/l.

If you have any questions concerning these results, feel free to call.

Sincerely,

Norman E. Burt

NEB/js

FILING
D.W.P.C.
MAIN FILE
COMPLAINT
OIL
HAZ. WASTE
NPDES
PERMIT
REC X Fitchburg
INSP
WWTF
OPS
REC
INSP
COMP. MON
STATE
O & M EPA
STATE
WWT OPERATOR EPA
OFFICE MEMO
MISC.
C.R.O.

JUN 22 1983

JAMES RIVER-MASSACHUSETTS, INC.
701 WESTMINSTER ST., FITCHBURG, MASS. 01420 TELEPHONE: 617-343-3051

June 20, 1983

Mr. Gilbert T. Joly, P.E.
Regional Environmental Engineer
Department of Environmental Quality Engineering
75 Grove St.
Worcester, MA 01605

Dear Mr. Joly:

Below are tabulated the test results for the wells at our sludge lagoons:

Well	Date	TOC	Fe	THF	DMF
1	5/13	8.0	0.60	<0.1	<1
2	5/13	Dry			
3	5/13	Dry			
4	5/13	15	85	0.29	<1
5	5/13	130	240	<0.1	<1
Surface	5/13	11	27	<0.1	<1

All values given are in mg/l.

If you have any questions concerning these results, feel free to call.

Sincerely,

Norman E. Burt

NEB/js
Copies to: N. L. Martin
L. P. Collette
R. S. Morgan

FILING
D.W.P.C.
MAIN FILE
COMPLAINT
OIL
HAZ. WASTE
NPDES
PERMIT
REC
INSP
WWTF
OPS
REC
INSP
COMP. MON
STATE
EPA
STATE
EPA
WWT OPERATOR
OFFICE MEMO
MISC.
C.

JAMES RIVER-MASSACHUSETTS, INC.
701 WESTMINSTER ST., FITCHBURG, MASS. 01420 TELEPHONE: 617-343-3051

September 30, 1983

Mr. Gilbert T. Joly, P.E.
Regional Environmental Engineer
Department of Environmental Quality Engineering
75 Grove Street
Worcester, MA 01605

Dear Mr. Joly:

Below are tabulated the test results for the wells at our sludge lagoons:

Well	Date	TOC	Fe	THF	DMF
1	8/2/83	5.2	5.6	0.024	ND
2	"	Dry			
3	"	Dry			
4	"	10	88.1	0.320	ND
5	"	58	156.8	0.009	ND
Surface	"	11	15.6	ND	ND

ND = Not Detected

All values given above are in mg/l. If you have any questions concerning these test results, please feel free to call.

Sincerely,

Norman E. Burt

NEB/js

JAMES RIVER-MASSACHUSETTS, INC.
701 WESTMINSTER ST. FITCHBURG, MASS. 01420 TELEPHONE: 617-343-3051

JANUARY 17, 1984

MR. GILBERT T. JOLY, P.E.
REGIONAL ENVIRONMENTAL ENGINEER
DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
75 GROVE STREET
WORCESTER, MA 01605

DEAR MR. JOLY:

BELOW ARE TABULATED THE TEST RESULTS FOR THE WELLS AT OUR SLUDGE LAGOONS:

WELL	DATE	TOC	FE	THF	DMF
1	11/22/83	2.6	13	ND	ND
2	11/22/83	DRY			
3	11/22/83	DRY			
4	11/22/83	7.6	88	0.047	ND
5	11/22/83	43	170	ND	ND
CULVERT	11/22/83	29	14	ND	ND

ND = NOT DETECTED

ALL VALUES ARE GIVEN IN MG/L. IF YOU HAVE ANY QUESTIONS CONCERNING THESE TEST RESULTS, PLEASE FEEL FREE TO CALL.

SINCERELY,

NORMAN E. BURT

NEB/JS

JAMES RIVER-MASSACHUSETTS, INC.
701 WESTMINSTER ST., FITCHBURG, MASS. 01420 TELEPHONE: 617-343-3051

June 14, 1984

Mr. Gilbert T. Joly, P.E.
Regional Environmental Engineer
Department of Environmental Quality Engineering
75 Grove Street
Worcester, MA 01605

Dear Mr. Joly:

Below are tabulated the test results for the wells at our sludge lagoons:

Well	Date	TOC	Fe	THF	DMF
1	5/18/84	3.4	11	<0.01	<1
2	"	Dry			
3	"	Dry			
4	"	9.0	74	0.11	<1
5	"	53	260	0.03	<1
Surface	"	26	51	<0.01	<1

All values given above are in mg/l. If you have any questions concerning these test results, please feel free to call.

Sincerely,

Norman E. Burt

NEB:pg

JAMES RIVER-MASSACHUSETTS, INC.
701 WESTMINSTER ST., FITCHBURG, MASS. 01420 TELEPHONE: 617-343-3051

July 16, 1984

Mr. Gilbert T. Joly, P.E.
Regional Environmental Engineer
Department of Environmental Quality Engineering
75 Grove Street
Worcester, MA 01605

Dear Mr. Joly:

Below are tabulated the test results for the wells at our sludge lagoon area. In addition to the normal quarterly analysis, we had analyses performed for barium, calcium, chromium (total), copper, lead and zinc. The results of these metals analyses are also reported below.

Well	Date	TOC	Fe	THF	DMF	Ba	Cd	Cr(Tot).	Cu	Pb	Zn
1	5/18/84	2.9	0.48	< 0.01	<1	<0.02	0.0058	<0.0005	0.039	0.019	0.040
2	"	Dry									
3	"	Dry									
4	"	5.2	47.6	0.027	<1	0.11	0.00063	<0.0005	0.003	0.0083	0.013
5	"	60	270	<0.01	<1	<0.02	0.00098	<0.0005	<0.005	0.0098	0.021
Culvert	"	11.5	12.5	<0.01	<1	0.086	<0.0005	<0.0005	0.0076	<0.005	0.010

All values above mg/l. If you have any questions concerning these test results please feel free to call.

Sincerely,

Norman E. Burt

NEB/pg

JAMES RIVER-MASSACHUSETTS, INC.
701 WESTMINSTER ST., FITCHBURG, MASS. 01420 TELEPHONE: 617-343-3051

November 14, 1984

Mr. Gilbert T. Joly, P.E.
Regional Environmental Engineer
DEQE
75 Grove Street
Worcester, MA 01605

Dear Mr. Joly:

In accordance with the Interim Ground Water Discharge Permit #0-134 we are submitting the information given below on samples collected at our sludge lagoon site.

Location	Date	Water Evaluation	pH	Fe	Cd	Cr	Pb	Cu	Specific Conductivi
Well B-1	10/4/84 11/11/84	681.6'	5.0	10	0.0027	0.018	0.028	0.032	42
Well B-2	10/11	685.2'	Bottom elevation is 684.6'. The water depth of 6 inches was not enough to sample.						
Well B-3	10/11	686.0'	Dry						
Well B-4	9/28/84 10/4/84 10/11/84	680.8'	6.0	66	0.0006	0.0075	0.011	0.017	296
Well B-5	9/28/84 10/4/84 10/11/84	680.9'	6.3	260	0.0012	<0.005	0.015	0.008	800
Sludge	10/4/84		6.0	0.095	<0.0005	<0.005	<0.005	0.039	250

Note: All concentrations are in mg/l.
The sludge sample was filtered prior to submittal for analysis.

If you have any questions, please feel free to give me a call.

Sincerely,

Norman E. Burt

NEB/js
cc: Thomas C. McMahon, Director

bcc: L. P. Collette
J. E. Bason
A. F. Zephir
C. Williams

JAMES RIVER-MASSACHUSETTS, INC.
701 WESTMINSTER ST. FITCHBURG, MASS. 01420 TELEPHONE: 617-343-3051

November 14, 1984

Mr. Gilbert T. Joly, P.E.
Regional Environmental Engineer
DEQE
75 Grove Street
Worcester, MA 01605

Dear Mr. Joly:

In accordance with the Interim Ground Water Discharge Permit #0-134 we are submitting the information given below on samples collected at our sludge lagoon site.

Location	Date	Water Evaluation	pH	Fe	Cd	Cr	Pb	Cu	Specific Conductiv
Well B-1	10/4/84		5.0	10	0.0027	0.018	0.028	0.032	42
	11/11/84	681.6'							
Well B-2	10/11	685.2'	Bottom elevation is 684.6'. The water depth of 6 inches was not enough to sample.						
Well B-3	10/11	686.0'	Dry						
Well B-4	9/28/84		6.0						296
	10/4/84			66	0.0006	0.0075	0.011	0.017	
	10/11/84	680.8'							
Well B-5	9/28/84		6.3						800-
	10/4/84			260	0.0012	<0.005	0.015	0.008	
	10/11/84	680.9'							
Sludge	10/4/84		6.0	0.095	<0.0005	<0.005	<0.005	0.039	250

Note: All concentrations are in mg/l.
The sludge sample was filtered prior to submittal for analysis.

If you have any questions, please feel free to give me a call.

Sincerely,

Norman E. Burt

NEB/js
cc: Mr. Thomas C. McMahon, Director
DEQE - Boston

MAY 22 1985

JAMES RIVER-MASSACHUSETTS, INC.
701 WESTMINSTER ST., FITCHBURG. MASS. 01420 TELEPHONE: 617-343-3051

May 21, 1985

Mr. Gilbert T. Joly, P.E.
Regional Environmental Engineer
DEQE
75 Grove Street
Worcester, MA 01605

Dear Mr. Joly:

Below are the most recent analyses of the samples collected from the wells at our lagoon area:

Location	Date	Water Elevations	pH	Fe	Cd	Cr	Pb	Cu	Specific Conductance
B-1	4/19/85	678.5	4.6	43	0.0019	0.032	0.047	0.055	59
B-2	"	685.2	Dry						
B-3	"	686.0	Dry						
B-4	"	677.6	Dry						
B-5	"	677.6	6.0	270	0.0010	<0.010	0.014	<0.010	1090
Culvert	"		6.1	6.3	<0.001	<0.010	<0.010	<0.010	260

Note: All concentrations are in mg/L.

If you have any questions, please feel free to give me a call.

Sincerely,

Norman E. Burt

NEB/js
cc: Thomas C. McMahon, Director
Executive Office of Environmental Affairs
DEQE, Division of Water Pollution Control
One Winter Street
Boston, MA 02108

FILING
D.W.P.C. C.R.O.
WATER QUALITY_____
DISCHARGER
MUNIC.
INDUST.(S.W.)
INDUST.(G.W.)
PERMIT_____
OPS_____
REC James R. Fitch
INSP_____
SLUDGE/L.A._____
CONN._____
SEPTAGE_____
MISC._____

FEB 4 1986

JAMES RIVER-MASSACHUSETTS, INC.
701 WESTMINSTER ST., FITCHBURG, MASS. 01420 TELEPHONE: 617-343-3051

January 31, 1986

Mr. Gilbert T. Joly, P.E.
Regional Environmental Engineer
DEQE
75 Grove Street
Worcester, MA 01605

Dear Mr. Joly:

Below are the most recent analyses of the samples collected from the wells at our lagoon area:

Location	Date	Water Elevations	pH	Fe	Cd	Cr	Pb	Cu	Specific Conductance
B-1	11/21/85	677.0	Dry						
B-2	"	685.2	Dry						
B-3	"	686.0	Dry						
B-4	"	677.6	Dry						
B-5	"	677.6	7.3	580	0.0029	0.013	0.040	0.039	825
Culvert	"		6.8	8.0	<0.0005	<0.005	<0.005	<0.005	250

Note: All concentrations are in mg/l.

As indicated in the letter from Mr. McMahon (3/13/85) regarding further monitoring of the wells after this date, we plan no further sampling at this site. As can be seen from the data above, all but one of the wells are dry and, with the exception of iron, all of the concentrations are at insignificant levels.

If you have any questions, please feel free to give me a call.

Sincerely,

Norman E. Burt

NEB/js
cc: Thomas C. McMahon, Director
Executive Office of Environmental Affairs
DEQE, Division of Water Pollution Control
One Winter Street
Boston, MA 02108

425 TAYLOR ROAD
NW. MASSACHUSETTS 01775
(617) 897-8737

SOIL EXPLORATION CORPORATION

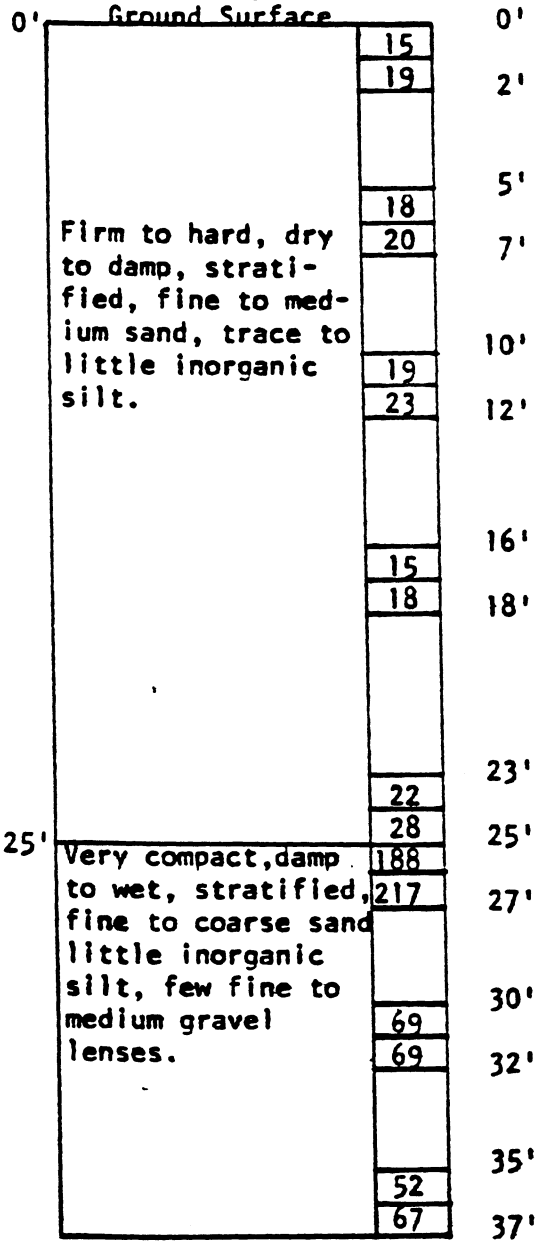
TEST BORINGS • GEOLOGICAL CONSULTING

OAK HILL PROFESSIONAL PARK
LONDONDERRY, N.H. 03053
(603) 627-3051

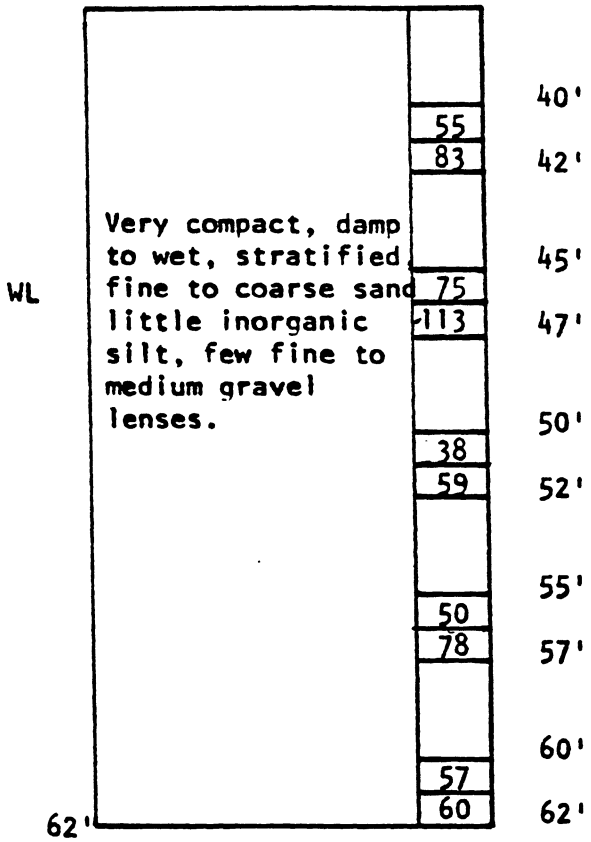
To James River-Fitchburg Inc. Date 4/3/79 Job No. 79-028

Location James River-Fitchburg Inc., Fitchburg, Mass. Scale 1" = 6 ft.

Test Boring No. 1
3/29-30/79
Ground Surface



Test Boring No. 1
Continued



End of boring 62'
Installed observation well point at 59.5'
(WL) Water Level 46' upon completion.

Figures in Right Hand Column Indicate the Number of Blows Necessary to Drive spoon 12 inches using 140 lb. weight	Casing Data	Sampler Data
	Casing O.D. 2-3/4" I.D. 2-1/2"	Sampler O.D. 2" I.D. 1-3/8"
	Hammer Fall 24"	Inside Length of Sampler 24"
	Weight of Hammer 300#	Hammer Fall 30"
		Weight of Hammer 140#

425 TAYLOR ROAD
LOW, MASSACHUSETTS 01775
(617) 897-8737

SOIL EXPLORATION CORPORATION

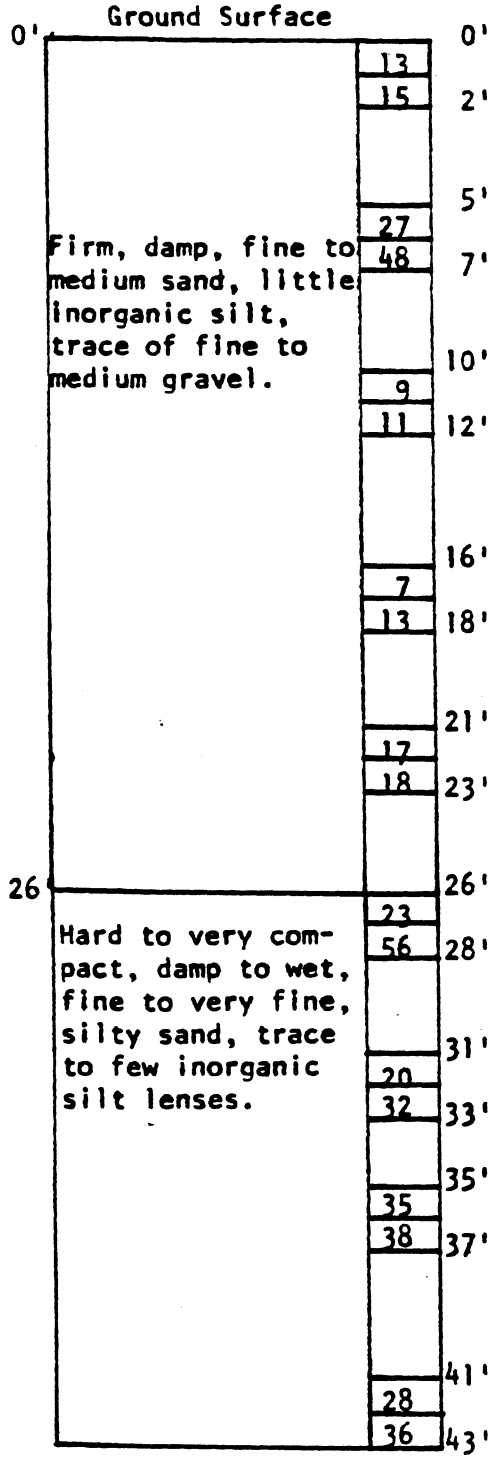
TEST BORINGS • GEOLOGICAL CONSULTING

OAK HILL PROFESSIONAL PARK
LONDONDERRY, N.H. 03053
(603) 627-3051

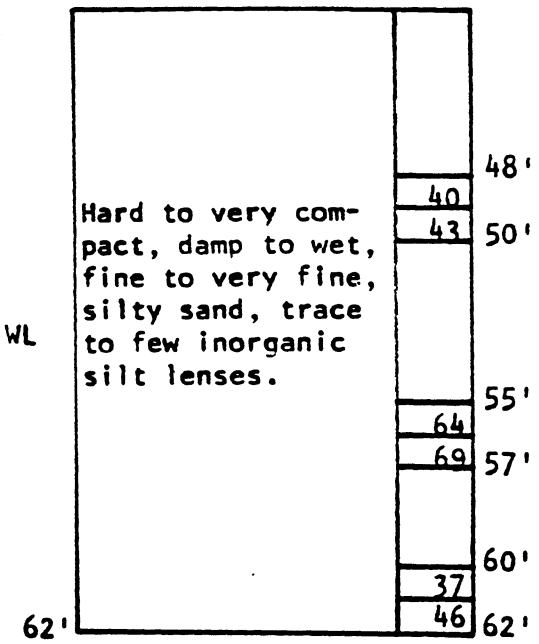
To James River-Fitchburg Inc. Date 4/3/79 Job No. 79-028

Location James River-Fitchburg Inc., Fitchburg, Mass. Scale 1" = 6 ft.

Test Boring No. 2
3/27-28/79
Ground Surface



Test Boring No. 2
Continued



End of boring 62'
Installed observation well point at 60'
(WL)Water Level 53.2' upon completion.

Figures in Right Hand Column Indicate the Number of Blows Necessary to Drive spoon 12 inches using 140 lb. weight falling 30 inches.	Casing Data Casing O.D. 2-3/4" I.D. 2 1/2" Hammer Fall 24" Weight of Hammer 300#	Sampler Data Sampler O.D. 2" I.D. 1-3/8" Inside Length of Sampler 24" Hammer Fall 30" Weight of Hammer 140#

425 TAYLOR ROAD
DW, MASSACHUSETTS 01775
(617) 897-8737

SOIL EXPLORATION CORPORATION

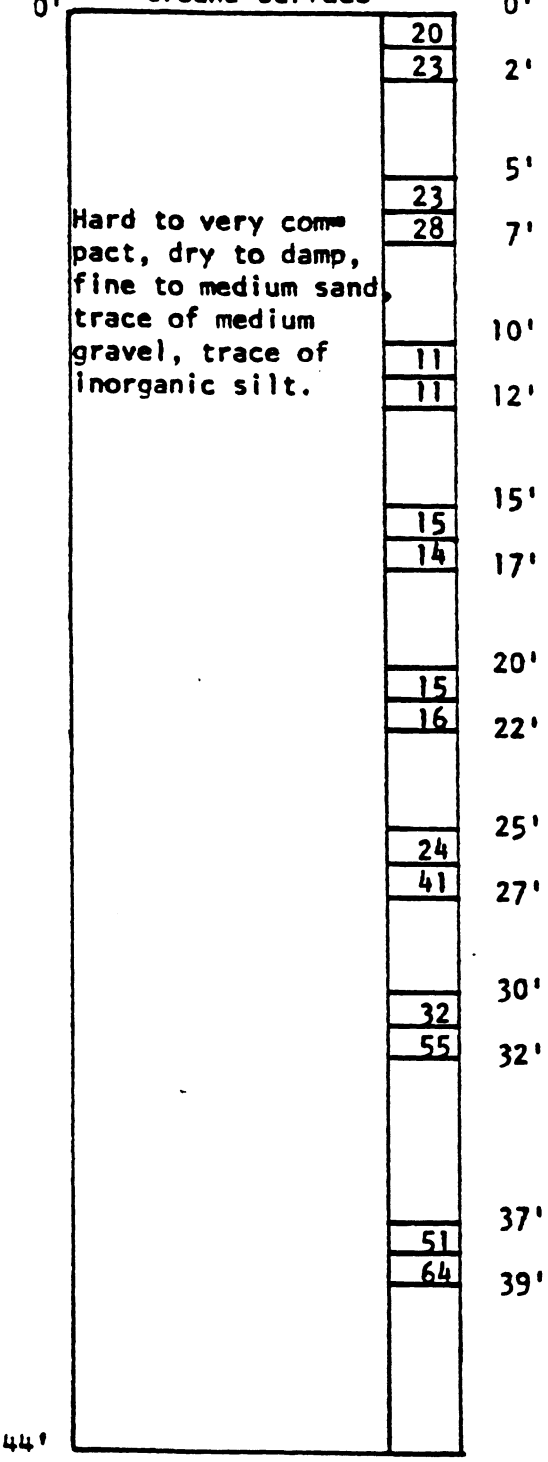
TEST BORINGS • GEOLOGICAL CONSULTING

OAK HILL PROFESSIONAL PARK
LONDONDERRY, N.H. 03053
(603) 627-3051

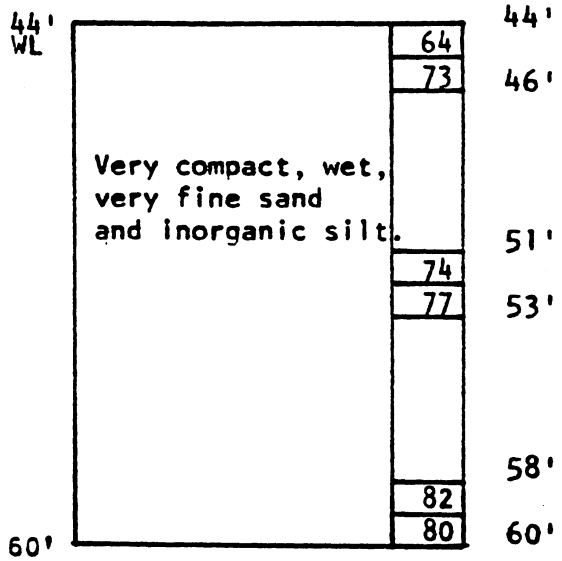
To James River-Fitchburg Inc. Date 4/3/79 Job No. 79-028

Location James River-Fitchburg Inc., Fitchburg, Mass. Scale 1" = 6 ft.

Test Boring No. 3
3/29-30/79
Ground Surface



Test Boring No. 3
Continued



End of boring 60'
Installed observation well at 60'
(WL) Water Level 45' at completion.

Figures in Right Hand Column Indicate the Number of Blows Necessary to Drive spoon 12 inches using 140 lb. weight	Casing Data	Sampler Data
	Casing O.D. 2-3/4" I.D. 2-1/2"	Sampler O.D. 2" I.D. 1-3/8"
	Hammer Fall 24"	Inside Length of Sampler 24"
	Weight of Hammer 300#	Hammer Fall 30"
		Weight of Hammer 140#

425 TAYLOR ROAD
DW, MASSACHUSETTS 01775
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SOIL EXPLORATION CORPORATION

TEST BORINGS • GEOLOGICAL CONSULTING

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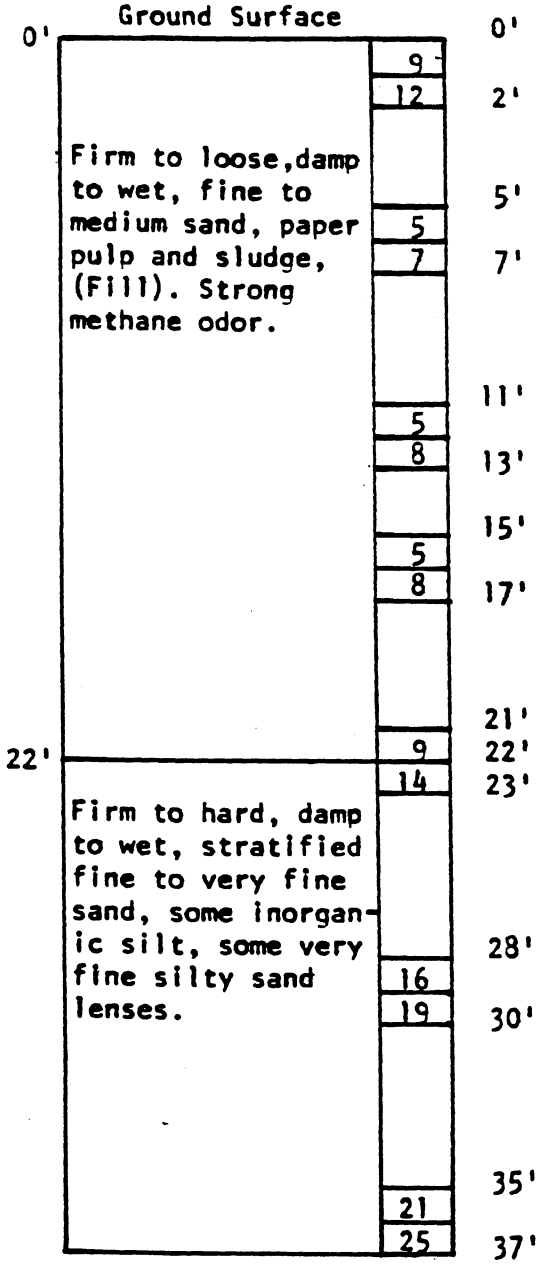
(603) 627-3051

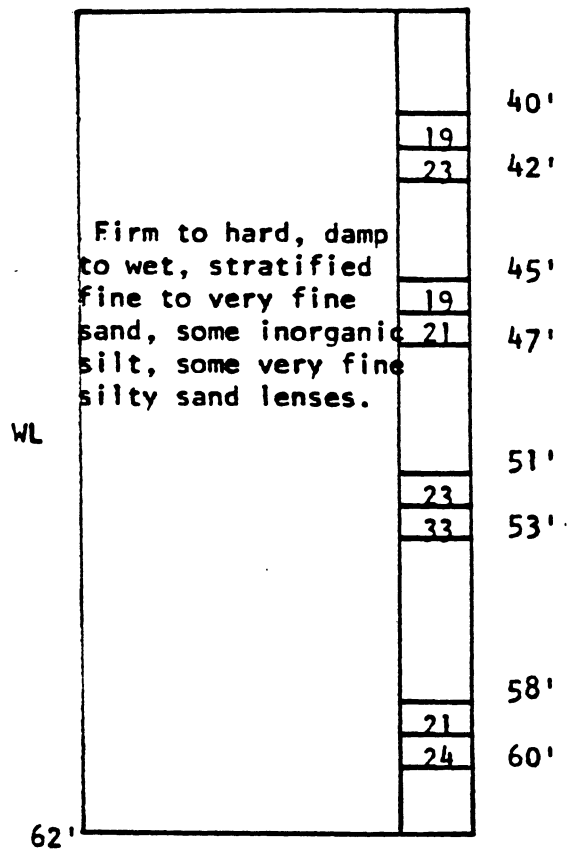
To James River-Fitchburg Inc. Date 4/3/79 Job No. 79-028

Location James River-Fitchburg Inc., Fitchburg, Mass. Scale 1" = 6 ft.

Test Boring No. 4
3/28-29/79
Ground Surface



Test Boring No. 4
Continued



End of boring 62'
(WL) Water Level 50' upon completion

Figures in Right Hand Column Indicate the Number of Blows Necessary to Drive spoon 12 inches using 140 lb. weight	Casing Data	Sampler Data
	Casing O.D. 2-3/4" I.D. 2-1/2"	Sampler O.D. 2" I.D. 1-3/8"
	Hammer Fall 24"	Inside Length of Sampler 24"
	Weight of Hammer 300#	Hammer Fall 30"
		Weight of Hammer 140#

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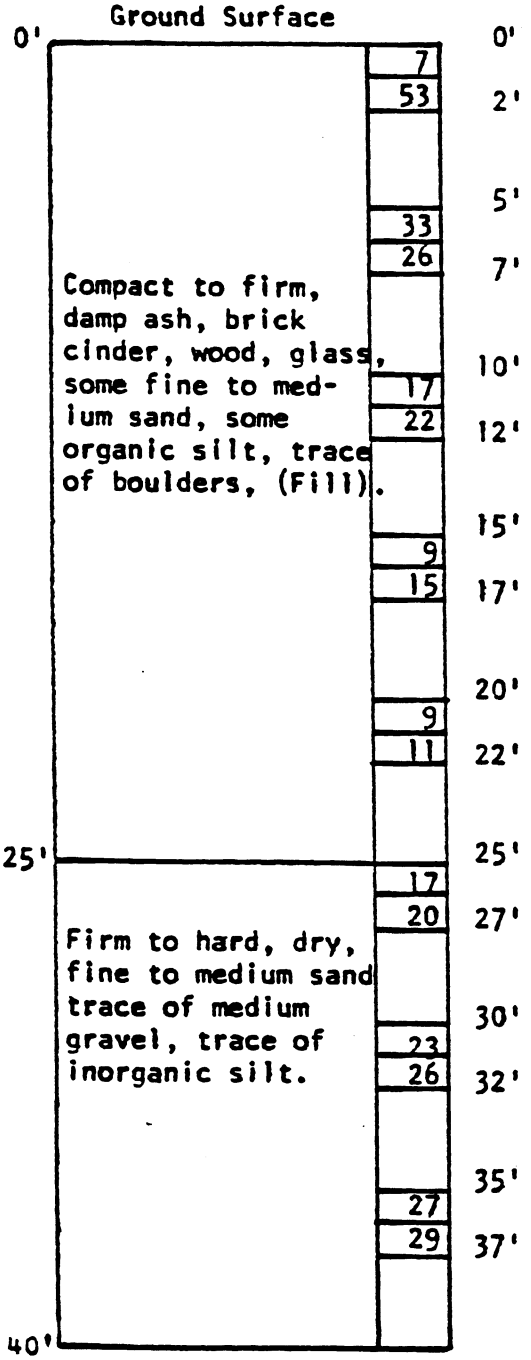
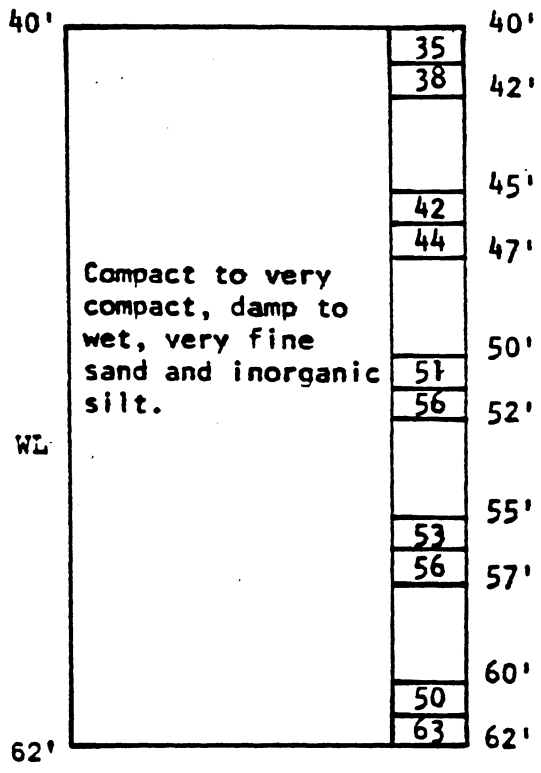
To James River-Fitchburg Inc. Date 4/3/79 Job No. 79-028

Location James River-Fitchburg Inc., Fitchburg, Mass. Scale 1" = 6 ft.

Test Boring No. 5
3/30-31/79
Ground Surface



Test Boring No. 5
Continued



End of boring 62'
(WL)Water Level 53'
upon completion.

Figures in Right Hand Column Indicate the Number of Blows Necessary to Drive spoon 12 inches using 140 lb. weight falling 30 inches.	Casing Data Casing O.D. 2-3/4" I.D. 2-1/2" Hammer Fall 24" Weight of Hammer 300#	Sampler Data Sampler O.D. 2" I.D. 1-3/8" Inside Length of Sampler 24" Hammer Fall 30" Weight of Hammer 140#

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